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THE UTERINE BLEEDING OF MIDDLE LIFE*

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Uterine hemorrhage occurring at or near the middle period of life is of course governed by the same principles which are concerned at other periods. It is, however, given a rather special interest and importance because of the frequent incidence of cancer at this time of life, and the consequent necessity of excluding this, the dreaded cause of so many menopausal hemorrhages. The term "menopausal" is of course used in a very broad sense, as referring to the entire middle period of life, and not to the shorter period represented by the menopause itself.

The two chief factors concerned in uterine hemorrhages are anatomic or structural disease, and disturbances of function. The former is well illustrated by cancer, in which the bleeding is easily understandable as produced by actual destruction of tissue and opening up of blood vessels. The mechanism of uterine bleeding here is as simple as is that of the rectal bleeding with rectal cancer, or the haematemesis of stomach cancer. On the other hand, uterine bleeding may occur in the entire absence of any demonstrable structural disease, and in such cases is explainable by disturbances of function. In still other cases, a combination of the two factors appears to be concerned, as with ectopic pregnancy, many cases of chronic pelvic inflammatory disease, certain ovarian tumors, etc.

In the middle period of life, one may encounter almost any of the usual causes of abnormal bleeding, such as incomplete abortion, benign polypi, myomata, tubal disease, or ovarian tumors. In most of these cases the cause is either quite obvious or can be easily enough arrived at. Special interest and importance, however, attach to the types of bleeding produced by cancer and by functional disease, because both are rather characteristically associated with this period of life, and because of the fact that it is not infrequently necessary to differentiate between them. The importance to the patient of such a differentiation need not be stressed. It is to these two forms of menopausal hemorrhage, therefore, that I shall limit the present discussion.

CANCER OF THE UTERUS

The subject of uterine cancer has been so strongly stressed in both medical and popular literature that one almost hesitates to bring up once more its vital importance as a gynecological problem. As an extenuation one can point to the fact that women are still being sacrificed to this disease by the thousand each year, and, what is more important, that thousands each year are still applying for treatment at stages far beyond what could be called early and reasonably hopeful. It would be absurd to urge that the present sad state of affairs could be entirely cleared up by any amount of education of both the public and the profession as regards the importance of early recognition of the disease. Some cases of cancer are so malignant that a woman is doomed even though the disease be recognized early. Again, the early course of the disease may, in some types, be so latent that even an intelligent and alert woman may notice no warnings until fatal extension of the disease has occurred. Moreover, the rapidity with which metastasis occurs is so variable that one may well wonder what constitutes an "early case," for a small initial lesion may have already undergone metastasis, while a larger and presumably less favorable one may not. Finally, the same variability is seen with regard to the response from the various forms of treatment, whether surgical or radiotherapeutic.

All these things being conceded, the fact still remains—and it is the one big fact upon which the whole campaign of popular and professional education is based—that, taken by and large, the outlook in cancer cases is far better when proper treatment is instituted early than when it is begun too late. Almost the only contribution which the profession can make to the public in the present state of our knowledge, aside from the routine methods of treatment, is the constant re-emphasis

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of this accepted fact. Popular education can be carried out in a wrong or in a right manner. Even under the best circumstances there will be an inevitable and deplorable backwash of such unpleasant results as cancerphobia. But people do not die of cancerphobia and they do die of cancer. Furthermore, if the education is properly administered, such unpleasant by-products can be kept down to a minimum.

Three great national organizations are now engaged in this great movement of popular education, viz.: the American Society for the Control of Cancer, the American Medical Association, and the American College of Surgeons. With all three, the educational policy is guided by medical men who are thoroughly cognizant of the risks as well as the advantages of such education, so that all are worthy of our united support and individual emulation. For, after all, no form of education is as sound and far-reaching as that which can be carried out by the individual physician to the individual patient, with whose needs and psychology he is thoroughly familiar. When every consultation becomes a prophylactic one, so to speak, a great step will have been taken, but in the meantime there is, no doubt, a real place and need for mass-education of the proper sort.

As with malignant disease elsewhere, there is a stage extending from its very inception to a point at which symptoms begin to appear. There are perhaps a few cancers—though very few—which are so malignant that the woman may not have a chance, for she is virtually doomed before being given warning at all by bleeding or other symptoms.

Far more often the fatal delay occurs in the stage between the first appearance of ominous symptoms and the examination by the physician. It is a shortening of this stage which is the desired goal of the campaign of popular education. Results have already begun to show themselves in the greater proportion of patients reporting for examination in a comparatively early stage of the disease.

The third stage of the disease is the one comprising the period between the first medical examination of the patient, usually by her family doctor, and the institution of proper treatment. It is this stage which I shall emphasize in this paper, for it is the one for which we, as medical men, are directly responsible. There is probably no doctor nowadays who does not know that abnormal bleeding or discharge at middle life may mean cancer. And yet there are unfortunately many who, not from ignorance but from a peculiar apathy, or else a lack of thoroughness, delay in seeing that proper treatment is instituted at the earliest possible moment.

No physician, except the very few who are hopelessly unconscientious, will fail to make at least a simple pelvic examination in women with suspicious symptoms. Again, probably no physician will fail to recognize advanced cancer if the disease is located in the cervix, as it usually is. In such cases, the examining finger will at once encounter a large friable cauliflower mass, or else will reveal an eaten-out crater-like ulcer. Diagnosis in such cases is distressingly easy, but the point is how much good it will do the patient, for she is almost certainly doomed anyhow.

On the other hand, suppose the physician finds no such lesion as that described above, or perhaps no lesion of the cervix at all. In the latter case, especially if the bleeding has occurred in a woman who has already passed the menopause, he should at once suspect cancer within the uterus, where it can not be felt, i. e., adenocarcinoma of the body or cervix. Under these circumstances he should explain to the woman, in simple and unalarming fashion, the importance of clearing up the doubt by diagnostic curetting and microscopic examination. Few women will object to this, and, if cancer is found, they will be richly rewarded, especially if the malignancy is in the fundus, as it most often is in such cases. Cancer of this variety gives extremely favorable results if operated on reasonably early, and even in some fairly advanced cases.

Again, if the cervix, instead of the advanced lesions above described, presents only an indurated area on one or other lip, or if there is an area of eversion or erosion covered by fine sprout-like outgrowths, with perhaps some superficial ulceration and such vascularity that it bleeds on slightest touch, the plan of action adopted by the physician will determine whether or not he is alert and intelligent. If not, he will assure the patient and himself that there is nothing seriously wrong because there is no cauliflower growth and no crater ulcer, which he may have been taught, years ago, to be distinctive of cancer. In the same way he had been taught that the symptoms of appendicitis are abdominal pain, distention of the abdomen, obstinate vomiting, hippocratic facies, rapid pulse, and high

fever—symptoms which we recognize as those of the late stages of peritonitis so often complicating appendicitis.

If, on the other hand, the examining physician is intelligently alert, he will know that in its earliest stages cancer assumes just the picture I have above described, and he will not be happy until the question is definitely settled. He will, in some cases, be unable to do this by merely looking at or feeling the cervix, nor, for that matter, can even an expert gynecologist do this in every case. But, in practically every instance, the matter can be decisively settled by clipping out a piece from the most suspicious area and examining it microscopically. If this biopsy, so-called, reveals no cancer, the patient can go on her way rejoicing and the doctor can feel that he has handled a diagnostic problem as it should be handled. If, on the other hand, definite cancer is shown, the patient ought to have a good chance for cure, at least a fifty-fifty chance in the earliest group, whether radium or operation be selected.

This plan is certainly much more intelligent than that of taking a chance that the lesion is probably benign, and thus allowing a patient to let the golden moment slip by. And it is certainly better than the plan of doing radical operations, or resorting to radium therapy, on suspicion alone.

It can not be too strongly emphasized, however, that the biopsy must be done properly, and, above all, that the microscopic examination be made by someone who is really qualified to pass upon tissues removed from this region of the body. Otherwise, more harm than good may result from it. This point needs double accentuation because of the rather specialized nature of the pathologic picture encountered in the uterus, and especially in the cervix, so that even an excellent general pathologist may go wrong rather easily in this field. There are, for example, certain peculiar and very common inflammatory pictures encountered in the cervix which have often been mistaken for cancer. I have discussed this whole question fully, from the pathologic and clinical aspects, in a recent paper, to which the reader is referred for fuller details.[1]

As to the *treatment* of cancer, once it has been definitely diagnosed, only the briefest summary need be given in this paper. With regard to cervical cancer, radium has, of course, changed completely the plan of treatment. Formerly the only decision the gynecologist had to make was as to whether or not the cancer was operable, i. e., whether a radical operation could be done without too much risk to the patient and with at least some chance of permanent cure. When the use of radium was begun, it was at first only as a palliative measure in surgically hopeless cases. Some of these were much retarded, although, in the early days of radium technique, some were definitely harmed. Occasionally, however, a permanent cure was reported even in quite advanced cases.

It was natural, therefore, for the use of radium to be extended to cases not so apparently hopeless, i. e., to only moderately advanced or borderline cases. An even greater proportion of good results was obtained, so that, in more recent years, the field of radium therapy has been so much extended that in many of the best clinics in the world, surgery has been entirely abandoned in the treatment of cervical cancer. There are many hospital internes today who have never seen a radical panhysterectomy for cervical cancer.

The results of this plan appear to have justified it fully, indicating that in these earlier, operable cases radium yields just as large a proportion of cures as surgery, without the inevitable primary mortality of the latter. On the other hand, the total number of reports upon the five-year results in the treatment of these early cases is not yet large, so that there are still many gynecologists who advocate radical operation upon early cases if the patient is a favorable subject for operation. This position, it seems to me, is a rational one only if the following conditions are fulfilled: (1) the cancer should be in a really early stage; (2) the patient should be in excellent condition, i. e., she must not be too old or too obese, and she should be free of any organic disease; (3) the surgeon should be really expert in the performance of the radical operation for cancer of the uterus. If these conditions be not present, a patient will certainly have a better chance for permanent cure, with least immediate danger, by radium than by surgery.

As far as cancer of the uterine body is concerned, the practice is quite the reverse, for here radical operation is preferred to radium unless there is some definite contraindication to surgical procedures. The reason for this is the fact that surgery has given excellent results in this field,

and that radium can not as yet be said to have proved its equality, much less its superiority, in this respect. It is only fair to say, however, that with improved technique, some radiologists have achieved very satisfactory results in the treatment of corporeal cancer, so that it is not impossible that here also the aggressive radiologist will displace his surgical confrere. For the present, however, the majority of gynecologists still advocate surgical operation as the method of choice in this field.

After all, however, it is not the method of treatment which determines the fate of the patient nearly so much as the factor of the stage of the disease at which treatment is instituted. Neither radium nor surgery give results in advanced cases, while either yields comparatively favorable results in early cases. The moral is plain here, as in the treatment of cancer in any region. We must try to increase our proportion of early cases (1) by educating women as to the possible significance of abnormal bleeding or discharge beyond the age of thirty; and (2) by thorough examination of every woman who presents herself with suspicious symptoms.

Finally, in this examination, we should lay aside our old concept of the lesions of cervical cancer, for the cauliflower growth and the foul crater ulcer of the textbook are really pictures of late and almost hopeless cancer. Rather should we familiarize ourselves with the picture of early cancer, and of those lesions which on examination can only be considered suspicious. It is in these groups that we have every right to expect an excellent proportion of permanent cures.

FUNCTIONAL MENOPAUSAL BLEEDING

As has already been indicated, there is a type of bleeding in which even the most thorough pelvic examination may reveal no abnormalities of the organs, so that cases of this type were formerly spoken of as "idiopathic." With the more recent advances in our knowledge of the normal and pathologic physiology of the reproductive cycle, evidence has accumulated to indicate that these cases exemplify perversions of the normal physiology of menstruation. It would be trite to urge that a proper appreciation of these abnormal cases must pre-suppose a working knowledge of the normal physiology and histology of the menstrual cycle, concerning which so much new information has been made available in the past few years. As I have discussed these newer developments in extenso in a recent paper[2], I shall not review them here.

Bleeding of the functional type occurs at any age during the reproductive epoch, but perhaps most characteristically at or shortly after puberty, and at or shortly before the menopause. The menopausal type, however, is by far the most frequent variety, and certainly the most important, because of the fact that it so often comes into diagnostic conflict with cancer.

The diagnosis of these cases is easily made by curetting and microscopic examination, and it can not be positively made in any other way. The microscope, in cases of this group, almost invariably reveals a picture designated as hyperplasia of the endometrium, the characteristics of which I have fully described in several previous publications.[3] Suffice it to say that it is characterized by an increase in the number of both the epithelial and stromal elements, and that the most important diagnostic feature is what I have designated as a Swiss cheese pattern of the glands. Some of the latter are large and cystic, others very small, giving rise to a distinctive pattern not to be mistaken, on the one hand, for any of the normal phases of the menstrual histological cycle, or, on the other hand, for any form of malignancy.

The question at once suggests itself as to why we speak of this type of bleeding as functional if it is associated with such a definite endometrial lesion. The answer is that the endometrial condition is just as definitely a mere response to a disordered ovarian function as are the widely varying normal cyclical changes in the endometrium to a normal ovarian function. This is not a mere hypothesis, for it can be supported by convincing evidence, as I have shown elsewhere.[3]

In some of these cases the endometrium is enormously overgrown and perhaps polypoid, constituting the condition which has often wrongly been designated as "polypoid endometritis." Genuine endometritis, as a matter of fact, almost never assumes a polypoid form. When such enormous polypoid overgrowth exists, the curette may bring away large quantities of the tissue, so that, if the patient be of the cancer age and if the surgeon is unfamiliar with the gross appearance of benign and malignant lesions of the endometrium, the generative organs may be needlessly sacrificed under the wrong diagnosis of adenocarcinoma of the body of the uterus.

In other cases the endometrium may show little or no gross overgrowth, but the microscopic pattern is the same.

I have been led to stress this particular type of benign endometrial disease not only because of its great frequency and obvious importance, but because of the fact that its recognition has not by any means become general. Little will be found on the subject as yet in many otherwise excellent textbooks, for textbooks are notoriously a lap or two behind the real line of progress. It can be seen at once that if the cervix is normal and no intra-pelvic pathology can be demonstrated by careful pelvic examination, i. e., if the bleeding is of endometrial origin, the cause can be revealed only by diagnostic curettement. Most important is the microscopic examination of the tissue removed. It is unsurgical and often dangerously culpable to omit this, for often the treatment is entirely contingent upon the pathological findings.

I have discussed the treatment of functional bleeding at various ages fully in the articles to which I have already alluded. Suffice it to say that, once the functional nature of uterine bleeding is established, its further treatment in women at the menopausal age is simple and effective. Such women have lived their reproductive lives, so that the question of further pregnancies rarely need be considered. The proper procedure, therefore, is to bring about a cessation of ovarian function, not by operation, but by radiotherapy. Either radium or xray can be utilized. The former is perhaps more precise and certain, but requires short hospitalization and usually at least a gas anaesthesia. I have therefore more frequently employed the xray treatment, which yields results equally satisfactory. In most cases the menstrual function is prematurely abolished, although in some, after a variable time, it may again reassert itself. If it does, and if it is excessive, another series of xray treatments will ordinarily bring about permanent disappearance. It is in the treatment of these functional hemorrhages that radiotherapy has perhaps its most brilliant gynecological application.

Great interest attaches to the possibilities of organotherapy in the treatment of this exceedingly frequent and important menstrual disorder, more particularly in young women, in whom radiotherapy is undesirable, except as a last resort. The characteristic ovarian finding in these cases is an absence of the corpus luteum and a persistence of the Graafian follicles. There is little doubt, in view of recent studies, that the underlying functional disorder is an abnormal amount and persistence of the follicle hormone and an absence of the corpus luteum hormone. These two hormones of the ovary are in some respects supplemental, in others antagonistic. It would seem, therefore, that a rational plan of treatment would be the use of the corpus luteum principle.

Unfortunately, the active principle of the corpus luteum had not been clearly worked out until the recent contribution of Corner and Allen.[4] Even now, Progestin, the name given to this principle by these investigators, is not available in any form suitable for clinical use. When it is, I believe that it may be possible to control functional bleeding of the type under discussion without the necessity, now frequent, of repeated curettage or radiotherapy.

A still more promising possibility presents itself in the remarkable recent studies upon the functional relation of the anterior pituitary to the ovary.[2] The former has been shown to be the "motor of the ovary." Without the anterior hypophysis the ovary can not function, while the former exerts its powerful cyclical effect upon the genital mucous membrances only through the intermediary agency of the ovary. Furthermore, evidence has accumulated to indicate that more than one hormone is produced by the anterior pituitary. Among these is one which is responsible for luteinization in the ovary, i. e., the conversion of granulosa cells into lutein cells.

The important point is that it is the lutein cells which, in turn, produce the progestin. In other words, if we could give our patients with functional hemorrhage this luteinizing principle of the anterior pituitary we should be able to bring about luteinization in the ovary, with the production of the progestin which such patients lack. This would, indeed, be a more fundamental plan of attack than the mere substitutional use of progestin, even if the latter were available.

As a matter of fact, it has been possible to secure a preparation of this anterior luteinizing principle of the anterior pituitary, and in a form which is non-toxic and convenient for clinical use. We have been experimenting with it recently, with most encouraging results, which will be published in the near future. If a satisfactory method of organotherapy can be worked out it will confer a great boon upon these cases,

for their treatment hitherto has constituted one of the most perplexing and often most distressing problems in gynecological practice.

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PHYSICIANS' CREDIT BUREAU

The Physicians' Credit Rating & Collection Bureau was authorized by the New Castle County Medical Society at their meeting held October 15, 1929, and began operating during January, 1930. This report is made to each member of the Society with the idea of showing what has been accomplished and to review the details of the plan.

The collection feature of the Bureau has been made use of by 26 members of the Society, who submitted lists of delinquent patients covering a total indebtedness of $18,657.15

Of this indebtedness, accounts for services rendered prior to 1927 (therefore, outlawed) amounted to				10,309.00
Leaving a balance of accounts collectible at law				$ 8,348.15
During the year the Bureau collected				$ 1,362.00
	Amount Submitted	Amount Collected	% Coll.	
Accts. dated during 1927 ...	$1,309.00	$49.00	3.	
Accts. dated during 1928 ...	3,131.75	204.50	6.5	
Accts. dated during 1929 ...	2,294.25	380.00	16.56	
Accts. dated during 1930 ...	1,613.15*	130.00	3.7	
Uncollected live accounts				
Promise to pay	1,734.25			
Unable to locate, lost Add.	2,199.50			
Dead, Too Poor, Jail, etc. ...	999.00			
Letters unanswered to date	2,651.90			
*Submitted during late 1930.				
DETAIL OF OUTLAWED AND ORDINARILY UNCOLLECTIBLE ACCOUNTS.				
Originally submitted				$10,309.00
Of which has been collected		$ 598.50	5.8	
Amount converted into live accounts		1,713.50	16.6	
				2,312.00
				$ 7,997.00
Uncollected outlawed accounts				
Dead, Too Poor, Jail, in Institutions, etc.		$ 974.75		
Unable to locate, addresses lost		2,670.75		
Letters unanswered—further action impossible due to Accts. being outlawed		4,351.50		
Total		$7,997.00		
After deducting from the outlawed accounts the sum of $7,997., it will be found that we have a remainder, representing portion of "outlawed accounts" which we have revived, of				$ 2,312.00
The above revived amount added to the original "collectible at law" accounts				8,348.15
Gives a grand total of accounts that may be considered collectible, of				$10,660.15

Despite a year of general business depression, widespread unemployment, etc., the Bureau collected 12.8% of the total.

The Bureau has furnished a supply of "blue collection" slips to each physician making use of its services. These slips, which state the account will be submitted to the Bureau if payment is not made within thirty days, have been sent out with the doctor's bills to delinquent patients. We are unable to estimate the amount collected by members through the medium of these slips, but we have been told they have been quite effective in persuading patients to settle their accounts more promptly than might otherwise have been the case.

The Bureau takes advantage of this opportunity to call your attention to the method used and the terms by which the service can be obtained.

METHOD

Two letters are sent to delinquents from the Bureau; a third is sent over the signature of its attorney; a collector is then sent to the home, through whom the Bureau ascertains whether collection is possible. The strong point of the system lies in the co-operation of the physicians, who, before answering a summons to a potential patient, may inquire of the Bureau whether or not the name appears as a delinquent. If so, the call should be referred, either by the physician or by the Physicians' Exchange, to the City Doctor.

Rather than be placed on such a list, many delinquents made a satisfactory adjustment with their physicians, although many accounts submitted to the Bureau had previously been in the hands of other collectors (in some cases as many as three).

TERMS

For an initial payment of $5.00, and a monthly fee of $5.00, a physician is entitled to *unlimited* reference to the Delinquent List, and to the service of the Physicians' Exchange. A subscriber is, therefore, upon payment of $60.00 a year, entitled to unlimited service both in the Credit Rating Bureau and in the Physicians' Exchange.

The fee for collection is 50% of all bills up to $25.00 inclusive, and 15% for bills over $25.

Upon these terms the Bureau and the Physicians' Exchange are furnishing service to 66 subscribers.

The physicians can realize the utmost from the Bureau only if every one becomes a subscriber.

Respectfully submitted,

M. T. ARCHER,
Manager.

EDITORIAL

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The Increasing Importance of Hospitals

The tenth annual compilation of statistics regarding hospital service in the United States, presented this week in The Journal, brings fresh interest to a consideration of the magnitude of hospital service. Not long ago, hospital procedures were the business only of the few who worked within their walls. The change to modern methods has been so sweeping as to seem inevitable. A comparison of hospital service of ten or twenty years ago with that of today arouses pride in the mighty forces that have brought about such changes.

Hospitals and Medical Education

The service of hospitals in the teaching of medicine has become a matter of primary importance. A modern medical school can hardly be conceived of apart from hospitals. There are in the United States 76 acceptable medical schools, but there are 316 teaching hospitals. These teaching hospitals, with a total bed capacity of 135,548, are affiliated with the 76 medical schools for teaching purposes and make the high quality of the clinical service in these schools possible.

But such a statement leaves more than half of the story untold. After the completion of four years of study in the medical schools, 664 approved hospitals, with a total bed capacity of 201,974, wait to receive the army of medical students, with an offer of 5,584 internships for their practical training in the care of the sick. And to those who, now trained in general medicine, desire to pursue some special branch of medical study, another group of 349 hospitals, with a total bed capacity of 218,495, offer 2,069 approved residencies in the various specialties.

There is still another chapter to the story that cannot be told in figures. Adequate statistics are not available regarding the large number of hospitals offering postgraduate courses—courses designed to keep efficient the well-trained army of practitioners whose contacts with medical schools are now matters more of past than of current history. The clinics held singly rather than in courses constitute another unknown but important factor in this phase of hospital service.

Increasing Use of Hospitals by Physicians

The practice of medicine also is being transferred to hospitals in a continuously increasing degree. In 1909 there were in the United States 4,359 reasonably acceptable hospitals; in 1930 there were 6,719, a numerical increase of 2,360, or 54.1 per cent. But the bed capacity of these hospitals rose during the same period from 421,065 to 955,869, a capacity increase of 534,804, or 127 per cent.

Approximately two-thirds of the active physicians of the United States are now connected with hospitals. In 1929 there were 152,503 licensed physicians, about 10,000 of whom were not in practice. Of the 142,500 who were in practice, 98,491 were connected with hospitals as staff members, superintendents, residents and interns. The physicians of ten or more years ago were not so connected to any such extent. Indeed, the increased use of hospitals has proceeded with and has been largely due to the increase in connection of physicians with the hospitals. If

the present trend continues, the number of active physicians not connected with hospitals will be infinitesimal.

The greatest number of those not yet participating in hospital practice are among the general practitioners. Hospital connection has become a practical necessity to the specialist and has increased with the growth of specialization. In 1929 the numbers of practitioners in the various specialties were:

Internists	3,378
Surgeons	12,939
Neuropsychiatrists	1,973
Radiologists	1,653
Dermatologists	896
Pathologists	672
Pediatricians	3,505
Obstetricians and gynecologists	6,108
Orthopedists	810
Ophthalmologists	1,343
Otorhinolaryngologists	6,805
Specialists in tuberculosis	984
Urologists	2,249
Other specialists	1,972

These practitioners make the hospitals what they are and in turn depend on them for their economic and professional lives. Every specialty therefore has a claim on these hospitals—a logical and undeniable right to a voice in the determination of hospital plans and procedures. The interests of no one specialty are paramount; the solution of hospital problems is the common task of all.

The best judge of hospital service in any special field is obviously the specialist in that field. Who could help more to develop a hospital's facilities for obstetric practice than a properly qualified obstetrician? Who is a more proper person for planning a first-class roentgen-ray department than the roentgenologist? To whom can one look for the highest degree of efficiency in the treatment of nervous and mental disorders if not to the psychiatrist?

FEDERAL AND STATE HOSPITALS

Federal and state governments are entering into competition with private agencies in the hospital field to a constantly increasing extent. In 1909 there were 232 state hospitals in the United States; in 1930 there were 581, a numerical increase of 150.4 per cent. In 1909 the bed capacity of state hospitals was 189,049; in 1930 it was 405,309, a capacity increase of 114.3 per cent. In 1909 there were 71 Federal hospitals in the continental United States; in 1930 there were 288, a numerical increase of 305.6 per cent. In 1909 the bed capacity of Federal hospitals was 8,827; in 1930 it was 63,581, a capacity increase of 620.3 per cent.

Such strides in the building and enlarging of hospitals by Federal and state governments may be interpreted in either of two ways: one may see in it a belated recognition of civic duty in the matter of chronic cases where family financial support fails; or one may view it as a preparatory step in a policy of unlimited expansion whose ultimate goal is state medicine.

That improvements in the way of scientific equipment for the care of the sick have kept pace with the expansion in the capacity of hospitals is shown by the fact that from 1923 to 1930 the number of laboratories in hospitals increased from 3,035 to 4,249. During the same time the number of xray departments increased from 2,841 to 4,523. The departments of physical therapy in hospitals numbered 2,091 in 1927 and 2,236 in 1930. And along with the increase in the number of these adjuncts to diagnosis and treatment in hospitals has come increased demand that these departments be under the supervision of medical practitioners who are specially qualified.

GROWTH OF OUTPATIENT SERVICE

The outpatient service of hospitals has grown steadily in recent years. Indications are that this growth has been influenced more by the tendency to congregate in cities than by the increasing density of population in general. In 1921, 678 hospitals reported that 3,000,163 outpatients made 9,552,123 visits to the outpatient department. In 1929, 1,027 hospitals reported that 6,644,983 outpatients made 19,056,394 visits.

INTERDEPENDENCE OF HOSPITALS AND PHYSICIANS

The greater the development of such institutions as have been described, the more extensive their use by the people, the more active must become the interest of the physician in their direction and control. It seems so simple to leave the economics, the construction, the administration of hospitals to lay boards and superintendents that far too many physicians are content simply to have the hospitals as a work place ready for them and their patients. Thus the attitude has grown among many philanthropists and hospital workers that the physician is the recipient of these facilities from the public and must therefore be under their direction. Nothing could be more fallacious. The doctors make the hospital.

Without them it necessarily falls. Its merits are equivalent to their merits and cannot surpass them. This fact should be realized by lay directors, who should take their medical staffs into consultation on every matter affecting the welfare of the institution and be guided by them in every scientific problem.—Editorial, *Jour. A. M. A.*, March 28, 1931.

EDITORIAL NOTES

DEAR DOCTOR:

THE JOURNAL and the Cooperative Medical Advertising Bureau of Chicago maintain a Service Department to answer inquiries from you about pharmaceuticals, surgical instruments and other manufactured products, such as soaps, clothing, automobiles, etc., which you may need in your home, office, sanitarium or hospital.

We invite and urge you to use this Service.

It is absolutely *free* to you.

The Cooperative Bureau is equipped with catalogues and price lists of manufacturers, and can supply you information by return mail.

Perhaps you want a certain kind of instrument which is not advertised in THE JOURNAL, and do not know where to secure it; or do not know where to obtain some automobile supplies you need. This Service Bureau will give you the information.

Whenever possible, the goods will be advertised in our pages but if they are not, we urge you to ask THE JOURNAL about them, or write direct to the Cooperative Medical Advertising Bureau, 535 N. Dearborn St., Chicago, Illinois.

We want THE JOURNAL to serve *you*.

We have before us an invitation from the American Birth Control League to a luncheon at the duPont-Biltmore Hotel on April 17th. The speakers listed include one minister, one professor, and one physician, whose united efforts are expected to lead to an organization meeting. The patronesses number forty, which makes it probable that a local unit of the League may eventualize.

Some years ago THE JOURNAL took the viewpoint that birth control was desirable, and despite the violent opposition of such an eminent man as Dr. Howard A. Kelly, we are of the same opinion still. This does not mean, however, that we approve of all the methods or personnel used to advance the cause of birth control. Indeed, some of its proponents have impressed us as being too radical, and their antics too undignified. Whether this luncheon will mean anything or not remains to be seen: the most it can do is to organize a band for propaganda purposes, but this in itself is not so desirable, for it will be lay propaganda concerning a medical subject—the very thing that the medical profession is thoroughly fed up on. Our views in this connection are very well expressed in the following editorial from the April issue of the RHODE ISLAND MEDICAL JOURNAL:

BIRTH CONTROL OR WHAT HAVE YOU!

We are in receipt of an invitation to a luncheon under the auspices of the American Birth Control League and from the program it would seem that the P. C. exercises would treat somewhat of the subject to which the League is dedicated. Quite a few years ago we recall a highly enjoyable annual dinner of the R. I. Medical Society after which the distinguished speaker of the evening regaled us with a speech on moist gangrene of the bladder. It was quite enough to make one "pitch his lunch." But such an invitation gives pause, for it is evident that some of the most important and sacred things in life are now taken from the medical profession and placed in the hands of clergy, nurses, women's clubs, and other individuals and organizations which are by tradition, training and education totally unfit to comprehend, discuss or treat the physical and economic problems involved. Behind every case of this sort there is sooner or later the element of responsibility with its concurrent liability. Every entrance of the clergy into medical subjects has resulted in misunderstandings and uncertainties. It might be said that the "Emmanuel Movement" so enormously popular at one time is now a thing of the past and of no particular credit to those concerned. Worship at the grave of the Rev. Fr. Powers was not particularly productive of therapeutic results, and there are very many other reasons why the conclusion may be made that the very best medical results are accomplished by well-trained persons who give their lives to the study of disease and its remedies. We believe that birth control and its methods should be entirely in the hands of the medical profession, and that the laity, what few of it are guided by altruistic motives and not by morbid and ill-advised curiosity, should seek its information from the medical profession and not from the self-styled "economists" who seek personal prominence rather than the true amelioration of social conditions. Some fads have been productive of much good but so far this has not proved itself to be one of them. There is still some privacy in life, there is yet a need of medical counsel, and individual and not mass guidance will accomplish the best results.

The message sent by Governor Buck to the legislature with his veto of the chiropractic bill has received special commendation from the A. M. A. headquarters. (J. A. M. A., April 4, 1931, page 96.) In addition, Dr. Woodward, director of the Bureau of Legal Medicine and Legislation, says: "Governor Buck's message is one of the clearest and most terse statements that I have ever seen of the basic reasons why chiropractors should not be licensed."

The fifteenth annual clinical session of the American College of Physicians was held in Baltimore last month, at which time Fellowship was granted the following Wilmington physicians: Drs. B. M. Allen, L. B. Flinn, G. H. Gehrmann, and W. H. Kraemer. These are the only Fellows in this city at present. The late Dr. Albert Robin was a Fellow for many years prior to his death.

The March issue of NORTHWEST MEDICINE contains a news-note of interest, which we reproduce. The italics are ours.

NEW CLINIC OPENS. The new University of Oregon Medical School Clinic on Marquam hill, Portland, was opened February 2. This replaces the old Portland Free Dispensary at 274 Fourth Street. It has a capacity of one thousand persons a day, while a quarter of that number are treated at present. It is staffed chiefly by members of the faculty of the University of Oregon Medical School. This building was a gift from the general education board of New York, connected with the Rockefeller Foundation. The four-story concrete structure cost $300,000, an additional $100,000 being spent for equipment. *It is exclusively for treatment of the indigent sick and will not compete with private practitioners.*

If this last sentence can be made to come true, literally and actually true, it would appear that the long-sought medical millennium is almost at hand. (University of Michigan please note.)

DEVILS, DRUGS AND DOCTORS

With the above title Dr. Howard W. Haggard, Associate Professor of Applied Physiology in Yale University, has written a book of the best-seller class that is now in its thirteenth printing. In subject material the book deals with a considerable number of the more important incidents, beliefs, practices, and discoveries occurring in medical history.

On January 25, there was begun a series of radio addresses by Dr. Haggard with the same title and covering much the same subject material. These addresses are sponsored by the Eastman Kodak Company of Rochester, N. Y., and dedicated to the physicians, surgeons, and dentists of America. Forty-two stations of the Columbia Broadcasting System are used, station KMOX of St. Louis being the station most convenient for Arkansas listeners. The series will continue through 1931, and, should the talks be of sufficient interest, the programs will be continued through a period of two and possibly three years.

This series of addresses will probably prove to be the most constructive piece of medical publicity ever attempted. As such it should have the support of the medical profession of America. To this end it is suggested that the physicians of Arkansas show an interest in the programs by listening to them, by telling their patients and friends about them, and by writing commendatory letters about them to the Eastman Kodak Company.

Each of the addresses will be printed on perforated sheets suitable for loose-leaf binding. Copies will be sent to anyone writing to the Kodak Company for them. The complete series of talks in printed form will give a comprehensive outline of medical history, a valuable addition to any physician's library.

The standing of Professor Haggard and the Eastman Kodak Company are sufficient for assurance that the highest ethical standards will be maintained. — Editorial, *Jour. Ark. Med. Soc.*, Feb., 1931.

(Note—Station WABC on Sunday, 8 P. M. to 8.15 P. M.)

INVITING LIABILITY

In certifying to deaths for insurance companies one finds, as a rule the following questions:

(a) Please state disease or diseases for which you attended patient in the past.

(b) Did deceased have any form of tuberculosis?

(c) Was there any cause for death in the habits, residence, family history, or the use of alcohol or drugs?

Any physician answering these questions at once causes himself to be liable for damages for imparting confidential information. The deceased's estate can institute suit against you for damages. The courts have so held. Just recently a New York physician was so sued.

We advise *that you decline to answer* these questions on *all forms* of insurance blanks.

It is an imposition on the part of insurance companies to ask these questions. In some of the other questions the insurance company is using the doctor to secure information of value to the company in determining its rates and protection. These questions should be ignored.

Lastly your attention is again called to the resolutions of our House of Delegates. *Do not fill out* these blanks or impart information concerning death, illness, or injury unless you are paid for such opinions and your expert advice. Doctors have been imposed upon far too long. If each of the 145,000 doctors in this country filled out *but one* such certificate a year the insurance companies would be receiving $290.000 worth of expert advice for nothing. They couldn't secure it from lawyers for nothing. Why should they from doctors? Demand your fee in advance. Do not let them argue you out of it by stating your patient will be the loser. Patients can be recommended to companies who will pay.

The average doctor fills out at least ten to twenty such blanks a year. Are you so financially independent that you can afford to contribute from $50 to $150 per year to our insurance companies? (The fee is from $2.00 to $10.00 per certificate.)

Cease being the "easy mark." Demand payment for your expert opinion and knowledge.—Editorial, *Jour. Mich. St. M. S.,* March, 1931.

Physicians Under No Obligations to Insurance Companies

Several times during the last few years we have called attention to the fact that physicians are under no obligation to furnish insurance companies with information concerning patients, even though paid for the service. The only exception is when ordered by a court to produce the record *in court.* Recently the medical society of the County of Kings, New York, has referred to the common practice of insurance companies in asking physicians for information regarding the diagnosis and other facts relative to the illness for which the physician has been in attendance at one time or another, and the Council on Medical Economics has recommended that a statement concerning the physician's relationship to insurance companies be published, which statement we recommend for the careful perusal of our readers, and is as follows:

"It is hardly necessary to report that all communications between patient and physician are privileged—and that this privilege must ever be held sacred and inviolable.

"The information on the usual death certificate is sufficient for a beneficiary as legal 'proof of death.'

"Even if *notarized* consents are forwarded by an insurance company to a physician such consents have no weight with the physician. It is recommended that before giving such information as is therein requested the doctor have a *personal* interview with such beneficiary—this refers *especially* to physicians who have attended deceased prior to the last illness of deceased.

"Hospitals, under the law of privileged communications, may not permit copy or inspection of the record of a patient. The only way such inspections may be secured is by an order of a court to produce such record *in court.*"—Editorial, *Jour. Ind. St. Med. Assn.,* March, 1931.

DELAWARE PHARMACEUTICAL SOCIETY

The Activity of Extracts of the Anterior and Posterior Lobes of the Pituitary Glands*

James C. Munch, Ph. D.
Baltimore, Md.

The pituitary gland consists of three portions: (1) the anterior lobe which is a diverticulum from the primitive oral cavity; (2) the posterior lobe which is an outgrowth from the brain, attached by a stalk known as the infundibulum; (3) the pars intermedia which consists of glandular cells and colloidal material, and separates the lobes. The function of the various portions of the gland is still a matter of uncertainty. In general it is believed that involvements of the anterior lobe are connected with disturbances in growth and sexual maturity, whereas the posterior lobe is related to blood pressure, uterine tonus and water metabolism. The anterior lobe is the largest, consisting of seventy to ninety per cent of the entire gland.

In their systematic investigation of the physiological activity of various glandular extracts in 1894, Oliver and Schafer obtained a rise in blood pressure in dogs and cats by injecting aqueous extracts of the entire pituitary gland. This rise in pressure was slower to develop but persisted for a longer time than the rise following the injection of extracts of the suprarenal gland (epinephrine). Howell showed in 1898 that the pressor activity was localized in the posterior lobe, and that extracts of the anterior lobe had little effect upon blood pressure. Spaul and others have subsequently suggested that the pressor-oxytocic-Melanophore-antidiuretic activity is developed in the pars intermedia and diffuses into the posterior lobe from whence it passes into the system.

Long and Evans in this country and Laquer in Germany have studied the physiological activity of anterior lobe extracts and developed methods of standardizing them. Inconsistent or discordant results have been obtained in studying the qualitative as well as the quantitative effect of anterior lobe extracts. T. Brailsford Robertson mixed fresh anterior lobes with three times their weight of anhydrous calcium sulphate, dried the paste and exhausted it with absolute alcohol. When the alcohol was removed from the filtrate, a precipitate was formed which was increased by the addition of anhydrous ether. This precipitate

* Read before the Delaware Pharmaceutical Society, Rehoboth, July 10, 1930.

is a white or creamy substance which Robertson called "tethelin," believing it to be the growth controlling principle of the anterior lobe. Drummond and Cannon have been unable to confirm Robertson's claim and report that tethelin was in fact an impure mixture of various lipoids.

Evans in attempting to confirm the value of anterior lobe extracts in 1923 obtained gigantic rats by the parenteral introduction of anterior lobe extracts. When injections were given to one of a pair of litter mates over a period of about one year, the injected animals weighed about three hundred grams. When alcohol was added to the aqueous extract in a concentration below 50 per cent, the precipitated proteins contained the growth stimulant while the sex hormone remained in solution. Putnam, Teel and Benedict suggested that anterior lobe extracts increased the rate of healing of wounds, the growth of hair, and general metabolism in hypophysectomized rats.

Gudernatsch failed to influence growth or metamorphosis of tadpoles with anterior pituitary extracts. Smith and Allen have developed methods for the removal of the pituitary gland of tadpoles in studying the action of extracts of the different lobes of the pituitary. Anterior lobe extracts stimulated growth but not metamorphosis. Thyroid extract retarded growth but stimulated metamorphosis. Somewhat similar results were obtained upon Axolotles.

Extracts of the anterior lobe, when freed from posterior lobe had no effect on the melanophores of frogs.

Little interest was paid to anterior pituitary action until the very recent work of Zondek and Aschheim. They showed that the sex hormone of the anterior lobe of the pituitary gland might be tested by its ability to produce oestrous in spayed mice. A mouse unit is defined as the smallest amount of material which will produce oestrous in a six to eight gram mouse within one hundred hours after injection. Curiously this hormone appears in the urine of pregnant women within a week after conception. The urine is made acid with acetic acid, filtered and concentrated in vacuo to one-half the original volume. The ovarian hormone ("Folliculin") is extracted with ether which does not remove the anterior lobe hormone ("Prolan"). The residual solution is then dialyzed, and the dialysate concentrated in vacuo giving a yellow-white amorphous powder which appears to be the active hormone. The urine of men and non-pregnant women contains one mouse unit per liter. During the first week of pregnancy the hormone increases to 3000-5000 units per liter, persisting at this level until the seventh to eighth month. It then decreases to 2000 units per liter at delivery, and to 1 unit per liter within a week after parturition.

The ovarian hormone slowly increases from a normal value of about 1 mouse unit per liter to 300-600 units during the first two months, continues rising to 6,000-10,000 units per liter during the seventh to eighth month, and returns to the normal level within a week after parturition.

When injected into normal mice or rabbits, both hormones cause hyperemia of the uterus and ovaries. They may be differentiated upon spayed mice. The ovarian hormone which acts directly upon the uterus produces a positive response; the anterior pituitary hormone which acts upon the ovaries fails to produce any noticeable reaction. This method has been developed as a means of standardization of the anterior lobe hormone. It must be recognized that this is still in the experimental stage and that the clinical applications are uncertain at present. The method has given very good results in predicting pregnancy. In 258 urines from non-pregnant humans, 254 negative reactions were obtained. In 197 urines from pregnant women 193 positive responses were found.

The growth-promoting hormone of the anterior lobe of the pituitary gland may be assayed by its effect upon the rate of growth of rats, following intraperitoneal injection. The sex hormone may be quantitatively assayed upon mice.

Studies of the physiological activity of the posterior lobe have been more numerous because of the greater clinical application of these extracts. There has been a great deal of uncertainty regarding the number of active principles in the posterior lobe. Abel and co-workers have contended that there is but one active principle, which is rather complex in chemical structure. Some investigators have maintained that there are two active principles, because they have obtained two fractions of different physiological activity. Other investigators have demonstrated (to their own satisfaction at least) that there are three or four active constituents, and one worker has claimed that there are eight principles of various degrees of activity. The question of the number of active constituents has not been definitely settled and a great deal of research work is still under way.

This question is of importance in determining the method or methods to be employed in standardizing pituitary extracts for clinical use. It is agreed that the extract of the posterior lobe has four distinct and separate pharmacological actions; (1) oxytocic, which is measured by the effect upon the isolated uterus, usually of a virgin guinea pig; (2) pressor, which is measured by the effect upon the carotid blood pressure of anesthetized dogs or decerebrate cats; (3) antidiuretic, which is measured by the effect on the excretion of urine by man, dogs, or rabbits; and (4) the melanophore constituent which causes expansion of the melanophores of frogs or fundulus heteroclitus. If these four types of action are due to the same substance any of these activities would serve as an indication of the others, and an assay by any method would indicate the degree of activity to be expected. If these effects are due to different principles, greater care is necessary in designating a method of assay for any one principle, since the desired clinical reaction may be a function of one of the other active ingredients. The presence of histamine in practically all pituitary extracts complicates the assay since histamine itself causes a contraction of the uterus as does pituitary extract; and causes a fall in blood pressure, whereas pituitary extract causes a rise.

The Tenth Revision of the U. S. Pharmacopoeia has officially adopted the oxytocic assay. The International Conference on Biological Assays, under the auspices of the League of Nations, has has also adopted this method of assay, but suggested a supplementary determination of the pressor and of diuretic action.

In measuring the physiological activity of the bio-assayed drugs, definite standards are necessary. Histamine, potassium chloride, and certain other substances not obtained from the pituitary gland have been recommended as assay standards, but have been dropped since the activity of this proposed standard and of pituitary extract are not identical and the relative sensitivity of the uterus changes at different rates during the course of an assay. Dale and Laidlaw recommended the preparation of an aqueous acid extract of the fresh gland. The work of other investigators culminated in a publication by Smith and McCloskey regarding the method of preparation of a dried defatted powder of the posterior lobe and this method was adopted by U. S. P. X. In this vial is a portion of the original lot of standard pituitary powder which was prepared by Nelson and myself for the U. S. P. X. and which has been distributed to manufacturers and other interested parties throughout the world. In making this powder a number of posterior pituitary glands were collected for us by Dr. Frederick F. Fenger of the Armour Laboratories, Chicago, Ill., and placed in acetone. This material was shipped to us in Washington, D. C., where we minced the glands and extracted them with acetone to remove all of the fat and water. The residual material was then ground to pass through a 40 mesh sieve and stored in vacuo over calcium chloride. Successive lots of standard pituitary powder have been made which have shown the same potency. (1 mgm. of powder is equivalent to 7 mgms. of fresh gland.)

For use, a weighed quantity of standard pituitary powder is rubbed to an impalpable frothy consistency with a few drops of 0.25 per cent acetic acid after which a sufficient quantity of acid is added to represent one cc. for every milligram of powder. This material is brought to a boil and filtered. The filtrate is placed in hard glass ampoules, sealed and sterilized by heating in an Arnold sterilizer or in streaming steam for twenty minutes on three sucessive days. Such a solution retains its activity unchanged for several years.

In assaying the oxytocic activity by the method outlined in U. S. P. X. a virgin guinea pig weighing between 175 and 350 gms. is killed. The abdomen is opened at once, both horns of the uterus removed and placed in Locke's solution at room temperature. This causes a prompt contraction. One horn is then trimmed free from the ovaries, broad ligament and adventitious tissue, and suspended in a chamber such as that used for studying the effect of drugs upon smooth muscle. Locke's solution is preheated to a constant temperature of 38° and 100 cc. admitted at the bottom of the chamber. A glass tube connected with an oxygen cylinder and to which a platinum pin is fixed, serves to hold one end of the uterine horn rigid. The other end of the horn is connected to a writing lever and the tip of the lever brought in contact with smoke paper upon a kymograph. Because of trauma, exposure to air, etc., the uterus exhibits fluctuation in tonus which usually disappear in fifteen to thirty minutes. By this time the uterus has relaxed to a more or less constant degree of tonus and the writing lever tends to trace a definite horizontal

line upon the paper. If irregular spontaneous contractions develop the weight of the writing lever is increased to damp them to a definite but small wave. In case spontaneous contractions are not exhibited, the weight is decreased somewhat until they just become evident.

The addition of a measured volume of pituitary solution causes the uterus to contract with a concomitant rise of the writing lever tip. When the contraction from the dose administered reaches its peak, the uterus exhibits slight spontaneous contractions after which relaxation begins. At this time the medicated solution is drained out and fresh Locke's solution admitted. The uterus more or less rapidly relaxes to its original state of tonus, and the writing lever tip returns to the original base line. A stated interval of time elapses between successive injections of pituitary solution. If the same dose is administered, the same degree of contraction is to be expected, after the first injection. The response to the first injection is always much less than to subsequent injections of the same dose.

Care must be taken that the quantities administered are sub-maximal. To determine this point, after the second and third injection have shown the same degree of response, a quantity twenty per cent larger or smaller is administered. The degree of contraction produced should be definitely altered by this change in dose. After several sub-maximal contractions of the same intensity have been produced by the same dose of a standard pituitary preparation, a measured volume of an unknown solution is tested in the same manner. If the degree of contraction produced is essentially identical with that produced by the standard, this is presumptive evidence of the presence of the same amount of active material in the two test doses. The dose of standard is repeated following the unknown in order to demonstrate that the sensitivity of the uterus has not changed. The unknown solution is then administered in a dosage which depends upon the degree of response in the first injection. If the contractions are approximately equal the same dose is given. If the response to the unknown was materially greater, the dose is reduced; if the response was materially less, the dose is increased. Alternate trials of standard and unknown are made until the same degree of effect is produced in several successive pairs of doses. The amounts of standard and of unknown are then decreased or increased by about twenty per cent. The same degree of contraction should be produced by the standard and the unknown with these changed doses. Knowing the amount of activity in the standard preparation (1 cc. was made to contain the activity of 1 mgm. of the standard powder) the volume of the unknown solution containing the same amount of activity may be determined directly. The U. S. P. Liquor Pituitarii should contain the equivalent of 5 mgms. of standard pituitary powder per cc.

By this method solutions may be assayed with an accuracy of about twenty per cent.

To assay the pressor activity a dog is anesthetized or a cat is decerebrated. A measured volume of standard solution is injected intravenously and the increase in blood pressure recorded. After half an hour or one hour a dose of unknown solution is given which is believed to produce the same increase in blood pressure. This is followed after the same interval of time by the same dose of the standard. Alternate injections are continued until the same degree of pressor response is obtained. Since the rise in blood pressure tends to decrease in successive injections, quantitative values are usually less accurate than by the oxytocic method.

To measure the diuretic action, rabbits weighing two to three kilos and fed on cabbage and carrots are given 0.01 cc. of pituitary extract intravenously. The volume of urine eliminated from the bladder is measured. Immediately after injection anuria develops diuresis suddenly begins after several minutes. An effort is made to determine the minimum amount of standard solution and of unknown causing diuresis. The animal is anesthetized, usually with urethane. The carotid blood pressure is recorded. If the diuretic response is very small and a fall in blood pressure is produced the presence of histamine is suspected.

To measure the melanophore activity, scales from the "killie fish" may be isolated, or injections may be given into the lymph sac or perfused through the iliac artery of frogs. A solution of standard pituitary powder is perfused through the iliac artery of one leg while the solution of the unknown is perfused through the iliac artery of the other leg. In case the perfusion solutions contain the same amount of active principle the same shade of darkening is expected in each leg. In case the solutions differ in activity, different intensities of color will develop. McLean has detected one part of pi-

tuitary powder in 200,000,000 of solution (corresponding to 0.005 micrograms) in the serum of dogs or man. This method is very suitable for the detection of minute amounts. It has not been studied very thoroughly for its assay possibilities.

The method of assay of pituitary preparations should correspond to the clinical use for which they are intended. Since the U. S. P. pituitary solution is generally used for its action upon the uterus, the oxytocic method of assay has been preferred. Other methods of assay are valuable in certain specific investigations but have not superseded the oxytocic assay.—*Maryland Pharmacist.*

WOMAN'S AUXILIARY

Panoramic View of the Woman's Auxiliary to the A. M. A. in Four Articles

3. Southern District

Mrs. C. W. Garrison

The third or Southern District of the Woman's Auxiliary to the A. M. A. may not have moved so rapidly as regards the number of Auxiliaries organized as the other sections, but the quality of those existing has proven them to be of the greatest value in promoting the aims of the national body.

Alabama reported three counties organized last year, and is particularly interested in a health program giving especial attention to children with a tuberculous condition. The group visited in Birmingham was alive and interested, and had the co-operation of their Medical Society.

Arkansas reported thirteen counties organized, all giving attention to a health program and trying to raise an adequate loan fund for medical students only. Some of the counties contributed obstetrical kits for use in the rural districts. Many of the Auxiliary members in Arkansas are devoting much time and energy to the parent-teacher work and are aiding in the various civic and welfare organizations. All will be gratified when the state is organized 100 per cent.

Florida, large areas of which are sparsely settled, has ten auxiliaries. Some of these are composed of a combination of two or more counties. Proof of the quality of these groups was seen when a large medical organization and its Auxiliary were entertained in Miami in 1929. Mrs. J. Ralston Wells, the little woman who now heads the State Auxiliary, furnishes further proof of their aliveness and interest. Florida with her marvelous fruits, flowers, and vegetables, and her wonderful sunshine has just as wonderful and marvelous women in her medical Auxiliary.

Georgia, which has given to the A. M. A. Auxiliary one of its most efficient presidents, Mrs. Allen H. Bunce, has more counties than any other state of its size, and has twenty-one of these organized for the Auxiliary. They have the full approval and co-operation of the State Medical Association, and having attended their state convention in 1929, the writer will vouch for the fact that no national meeting is more replete with interest and enthusiasm than was found in Georgia, nor have we found anywhere a greater desire to foster the aims and purposes of the national body. No group of women can possibly have greater courtesy, interest, and encouragement shown them and their work than is given to the Georgia Auxiliary by the medical men. Mrs. Harrold will bring from her state a goodly report.

Louisiana reports only two parishes organized. Taking into consideration the fact that one of these two auxiliaries has a greater enrollment than have some whole states makes us feel that Louisiana will not be far behind in the number of parishes when her final report of accounting comes in. She is not lacking in interest in any direction because the president of the State Auxiliary, Mrs. Harrold, is of the type who says "We will."

Mississippi reported four auxiliaries last year, and again we are able to speak with assurance of our expectations from this state. The president of the State Auxiliary attended the meeting in Detroit and returned to her state carrying with her additional enthusiasm and determination to gather into the fold more county organizations. This dream will come true. Mrs. Polk was the first to respond to our first circular letter. She has the approval and encouragement of the medical men of her state to go forward.

We may expect to hear of more interest, as well as more auxiliaries in North Carolina. Mrs. W. B. Murphy is the president of this great state, and though we have before us no report for last year, we do know of their interest in the past and believe we may hear the number five at least doubled in their next report.

South Carolina shows thirteen counties organized, and Mrs. Mauldin was prompt to reply with assurances that better things are ahead for next year.

Mrs. L. M. Sackett now leads the one Auxiliary reported from Oklahoma, and we feel certain that others will be added before June.

On invitation from its president we had the pleasure of meeting with the Davidson County Auxiliary in Tennessee early in October, and found a splendid group of women earnestly desiring to serve in the most useful way. We found as a member of this Auxiliary the state president, Mrs. Milton S. Lewis. While only four auxiliaries are reported from Tennessee, they are the counties in which the largest cities are located. The distances are great between, but with the known interest and enthusiasm of the two counties visited, Davidson and Shelby, we are assured that Tennessee will bring to the next national meeting a report filled with accomplishments which tend to fulfill the aims and purposes of the Auxiliary.

While we were not fortunate enough to meet with the Texas Auxiliary, we did have a little visit with the energetic and charming president, Mrs. O. M. Marchman. Texas, the mother state of the medical auxiliary as it is now recognized, has thirty-five county auxiliaries, and with a live, interested organization chairman such as Mrs. J. T. Moore is proving herself to be, others will be added before the next state meeting in May. Texas Auxiliaries have earnestly promoted a health program, always working shoulder to shoulder with the fine progressive men of the Medical Association who, in turn, endorse the Auxiliary movement, and are unstinted in encouragement to further development of the organization.

At this time the minds of the Third District are directed towards the Keystone State and the City of Brotherly Love, and many are hoping to be wending their way to Philadelphia in early June that they may partake of the feast of inspiration and absorb the spirit of Auxiliary. Pennsylvania and her neighboring states have grown so marvelously that all are now anxious to sit at their feet and learn. This, the Third District, is anxious to contribute its quota of honor paid to the medical men in whose interest we serve, and so it is with high anticipation that all plans are being made to be present at the annual meeting of the A. M. A. June 8-12, 1931.

MISCELLANEOUS

Physicians Report on Nursing Supply

On a typical day in a period of heavy sickness load, only two per cent of those patients who needed a special or private duty nurse were unable to get one, it was shown by the answers of 4,000 physicians to questionnaires on the demand for nurses in their own practice.

This case check-up by the physicians substantially agrees with the growing evidence from other sources, such as the registries, that there is at present no shortage in the general supply of nurses, and that it is, indeed, closely approaching the saturation point, as far as actual, economic demand is concerned. These studies of the nursing situation were made by the Committee on the Grading of Nursing Schools.

Informal comments from the doctors corroborated statistical findings that, while it is sometimes hard to get a nurse for Sundays, out-of-town cases, or twenty-four hour duty, it is almost never impossible to find any special nurses at all.

The physicians questioned represent those who minister to the most heavily nursed portions of the community, in cities and towns of all sizes. The months studied were January and March, two peak months of illness. It was found that, on the day of his answer, the typical physician had three patients who needed special nurses and two who got them. But of all the patients who, in the estimation of the attending doctor, needed a nurse, only two in each 100 were unable to find one.

Of the patients who did not have the special nurse recommended as necessary, it was found that:

45% could not afford a nurse.
29% were cared for by relatives or friends.
13% did not want a nurse.
7% were cared for by a visiting nurse.

Only 6% of these patients, or 2% of the total number, wanted a nurse but could not find one.

These findings are especially interesting from the standpoint of actual economic demand and willingness to pay for nursing service on the part of patients. More than 500 patients, for example, did not want a nurse and did not engage one, though, in the opinions of their physicians, they needed her skilled nursing care.

In the period of a month, the typical physicians in this group had five patients who employed nurses. They estimated that, given adequate floor service in the hospital, two of the five would

not have needed "specials." Twenty-six per cent of the physicians felt that some of their patients could have been cared for by a visiting nurse or hourly service, and 27 per cent felt the services of relatives or competent servants would have been adequate.

Since the physicians reporting were a selected group, caring for the most heavily nursed members of the community, it would seem, from the foregoing facts, that for the profession as a whole the daily average of patients per physician actually needing skilled nursing care is much less than three.

Half the physicians in this heavily nursed group declared that every one of their patients who needed private duty nurses had them. There is, therefore, reason to believe, the study states, that the lack of a nurse is often due not to a shortage, either in the general or local supply, but to the patient's decision that he did not want or could not afford a nurse.

Since, in the opinion of the doctors, two of every five patients employing special nurses could have been cared for by the floor service of a *well-run* hospital, the increase of adequacy of such floor service would mean a decrease in the employment of "specials" and additional employment of full-time graduates in the hospitals instead.

Many hospitals are already studying the problem of increasing the supply of graduate nurses on their staff so as to lessen the cost of nursing care for the patient and yet add little additional expense to the hospital's budget.

Seventy-three per cent, or almost three-fourths, of the physicians said they feel it is harder for their patients to pay the nurse's fee than to obtain her services. Those in the North Central and Western States were more emphatic on this point. Paying the fee is slightly less of a problem in the larger cities than in the smaller ones.

Of 23,500 physicians who answered questions as to the general need for private duty nurses in their practice, 87 per cent of the general practitioners said they need them often; 5 per cent, occasionally; and 8 per cent, practically never.

The specialists, who make up two-fifths of the total number reporting, showed somewhat less demand for the special nurse, with 79 per cent requiring them frequently for their cases and 17 per cent practically never. The private duty nurse is most in demand by the surgeon and obstetrician, 98 and 94 per cent, respectively, saying they often need her for their patients. The percentages of need in the other specialties were:

Internal medicine, 89%.
Orthopedic surgery, 86%.
Pediatrics, 85%.
Urology, 85%.
Ophthalmology, 75%.
Neurology, 57%.
Tuberculosis, 47%.
Industrial medicine, 47%.
Dermatology, 33%.
Roentgenology, 25%.
Public health, 9%.

Though physicians sometimes have to call two or three registries to get nurses for certain types of cases, their comments show much more frequently an inability to get the kind of nurse they feel is particularly needed for the case, rather than a total unavailability of nurses.

About two calls per physician were refused during a one-month period. The doctors find that *nurses are most apt to turn down calls for twenty-four hour duty, night duty, cases in the home, Sunday or holiday cases, and those requiring the nurse to go out of town.* [Ed. Note—The italics are ours.]

In fifty-two per cent of cases, the source of supply for nurses was the hospital registries; 21 per cent of the physicians got nurses through their own lists; 17 per cent, through the central registries; 5 per cent, from the commercial registries; and 5 per cent from unspecified sources.

Not unnaturally, the physician finds the nurse he gets from his own private list the most satisfactory. Nine out of ten of all the physicians said they would like to have the nurse on their last case back again.

The Versatile X

X is the Roman notation for ten;
X is the mark of illiterate men;
X is a ruler removed from his throne;
X is a quantity wholly unknown;
X may mean xenun, a furious gas;
X is a ray of a similar class;
X-mas is Christmas, a season of bliss;
X in a letter is good for one kiss;
X is for Xerxes, that monarch renownd;
X marks the spot where the body was found.

—*Kalends.*

Propaganda for Reform

Thromboplastin Hypodermic-Squibb Omitted from N. N. R.—Thromboplastin Hypodermic-Squibb is a sterilized extract of cattle brain in physiologic solution of sodium chloride intended for hypodermic injection to increase the coagulability of the blood. The Council on Pharmacy and Chemistry first accepted thromboplastic substances in 1915. Since then little or no additional evidence has developed for the value of these preparations: their intravenous use almost certainly presents dangers, and the Council has become convinced that there is no satisfactory evidence for their effectiveness when injected subcutaneously. In view of this the Council decided, unless new evidence should appear, not to include hereafter in New and Nonofficial Remedies any preparation of this type except for local application. Since Thromboplastin Hypodermic-Squibb is intended for hypodermic or subcutaneous injection, E. R. Squibb & Sons were informed of the action of the Council and asked to submit evidence in support of the value of the hypodermic administration of thromboplastic substance. The submitted evidence did not permit a revision of the Council's conclusion that the hypodermic or subcutaneous administration of Thromboplastin Hypodermic-Squibb or of other thromboplastic substances is not therapeutically valuable and therefore omitted the Squibb preparation from New and Nonofficial Remedies. (*Jour. A. M. A.*, February 21, 1931, p. 613.)

Koremlu, A Dangerous Depilatory.—There has been on the market for some time a depilatory sold under the name "Koremlu Cream," marketed first under the trade name "Kora M. Lublin," more recently under the style "Koremlu Inc.," both of New York City. According to the advertising, Koremlu is "guaranteed to devitalize superfluous hair roots on face or any part of the body." From information received it was quite apparent that Koremlu contained thallium acetate. Reports of serious effects of the use of Koremlu Cream have been reported that are typical of thallium poisoning. The A. M. A. Chemical Laboratory analyzed the preparation and concluded that it consisted essentially of an ointment containing approximately 7 per cent thallium acetate and 9.5 per cent of zinc oxide. Dr. Sabourand who studied the effects of thallium as a depilatory, declared that any ointment containing more than 1 per cent of thallium acetate is dangerous. He cautioned that but small amounts of the one-per-cent ointment should be used at one time; no limit is given to the amount of Koremlu, which is much stronger, that should be applied. (*Jour. A. M. A.*, February 21, 1931, p. 629.)

Potassium Thiocyanate in Hypertension.—Thiocyanates resemble iodides in their therapeutic effect, but they do not affect the thyroid gland. As with iodides, the action of thiocyanates can not be satisfactorily explained. The reduction of blood pressure is dependent on the dose. The small dose of 0.1 Gm. (1½ grains) three times daily, frequently fails to produce an appreciable reduction. The large dose, 0.3 Gm. (5 grains) three times a day, reduces blood pressure in a majority of cases but it is so liable to produce untoward results that such patients must be under careful supervision. The Council on Pharmacy and Chemistry has refused admission of potassium thiocyanate to New and Nonofficial Remedies because it considered the evidence for the drug's therapeutic value inconclusive and published a report giving the limitations of therapy with this drug. (*Jour. A. M. A.*, February 21, 1931, p. 632.)

Scarlet Fever Toxin.—The Dick scarlet fever toxin is regarded as a safe and efficient immunizing agent against scarlet fever. The main drawback to its use appears to be that several injections, generally not less than five, must be given before such a degree of immunity is established that the subject no longer gives a positive Dick test. (*Jour. A. M. A.*, February 21, 1931, p. 633.)

Therapeutic Possibilities of Gastric Mucin.—The gastric mucus aids in protecting the c lls from digestive or "erosive" damage by the acid that is poured into the lumen of the stomach when the gastric glands are active. Undue secretion of mucus in the stomach is responsible for lowering of the gastric acidity, just as proteins tend to "bind" free hydrochloric acid. The actual capacity of mucus to produce such an effect has been verified. Mucin prepared from hogs' stomachs was more potent than equivalent amounts of common protein foods such as gelatin, meat and egg white. In a few human patients with definite histories of ulcer and roentgenographic evidence of peptic ulcer the addition of powdered mucin to the ordinary bland diet brought about relief from subjective symptoms. (*Jour. A. M. A.*, February 28, 1931, p. 693.)

Vitaglass.—Vitaglass is the trade name for one of many patented ultraviolet transmitting mediums that pass ultraviolet radiations more or less freely. A Bureau of Standards report states that vitaglass of 2.3 mm. thickness has, at a wavelength of 3,020 Angstrom units, an average transmitting efficiency of nearly 25 per cent. More recent tests place the efficiency at 42 per cent. Other tests have given an efficiency of 47 per cent. The improvement in the manufacture of the product may account for these varying results. The product varies widely from batch to batch. The purchaser of vitaglass should protect himself by contracting with the dealer to furnish glass where transmission shall, after stabilization of exposure, not fall below the efficiency stated. A recent test gave no indication that children attending school in rooms glazed with vitaglass were perceptibly improved over those children who attended rooms glazed with ordinary glass. (*Jour. A. M. A.*, February 28, 1931, p. 711.)

BOOK REVIEWS

Symptoms and Diseases Applied: Differential and Mathematical Diagnosis. By W. L. Kitchens, M. D. Pp. 964. Cloth. Price, $10.00. Texarkana (Texas): W. L. Kitchens, M. D., 1930.

In this work the author attempts to make diagnosis a matter of mathematics. By tabulating the chief symptoms, which are numbered, and checking these against the lists of diseases, which are also numbered, one arrives at three diagnoses —positive, probable, and possible. The scheme is most ingenious, takes only a few minutes, and the answer will come out surprisingly close to the correct. The mathematics is at least as accurate as the current basal metabolism rate determination (which, by the way, is not mentioned in the book), or the mathematical grading of tumors.

The author frankly says the book is not intended to replace a textbook, nor could it. On the other hand, its lists, both of symptoms and of diseases, will quickly suggest many diagnoses that might not be thought of except after much cogitation or reading, and with this in mind it could, with profit, be placed in the library alongside the other encyclopedias of symptoms.